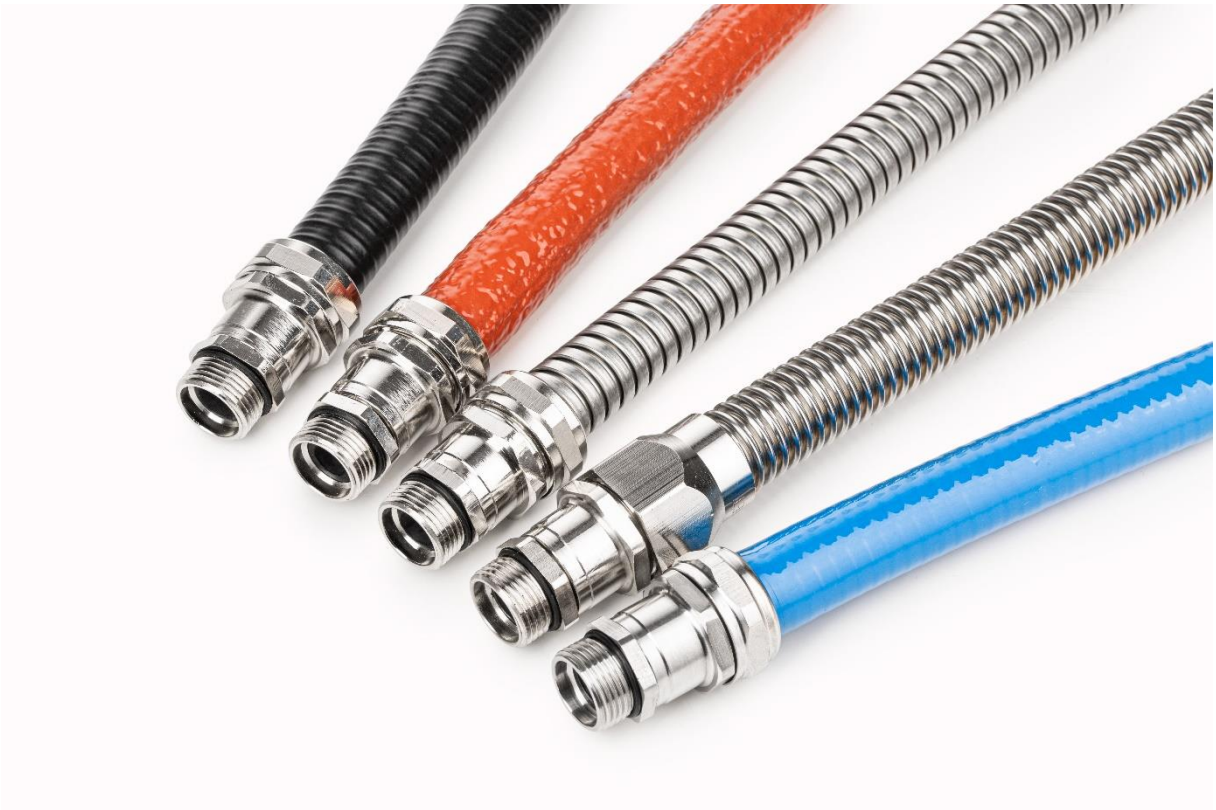
English



Instructions for use

Cable protection systems
CP-SA, CP-HT, CP-ML, CP-AF, CP-SE
for the best-possible protection of cables in heavy-duty applications

Read the Instructions for use prior to assembly,
starting installation and handling!
Keep for future reference!

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Further current information on this product series can be found online in our

Service Point.

Simply scan the QR Code and open the link in your browser.

Contents

1 General

1.1 Information about the Instructions for use

These instructions for use provide important instructions for working with the cable protection systems. They must be carefully read prior to starting all tasks, and the instructions contained herein must be followed.

In addition, the local accident prevention regulations and general safety regulations applicable to the area of use of the cable protection system must be observed.

1.2 Scope of supply

The scope of supply of the cable protection system includes the cable protection system and the instructions for use.

1.3 Explanation of symbols

Warnings are indicated by symbols in these instructions for use manual. The warnings are introduced by signal words that express the scope of the hazard. To prevent accidents, personal injuries and material damage it is imperative to observe the information provided and proceed with due care and attention at all times.

WARNING!
Indicates a possibly dangerous situation that can result in death or serious injury if it is not avoided.

CAUTION!
Indicates a possibly dangerous situation that can result in minor injury if it is not avoided.

CAUTION!
Indicates a possibly dangerous situation that can result in material damage if it is not avoided.

NOTES!
Indicates useful tips and recommendations as well as information for efficient and trouble-free operation.

DANGER!

Life-threatening danger due to electric shock!

Indicates a life-threatening situation due to electric shock. If the safety instructions are not complied with there is danger of serious injury or death. The work that must be executed should only be performed by a qualified electrician.

1.4 Warranty and liability

In principle the "General Terms and Conditions" of Johannes Hübner Fabrik elektrischer Maschinen GmbH apply. These are available to the operator with the Order Confirmation or when the contract is concluded at the latest. Warranty and liability claims in the case of personal injury or damage to property are excluded, as well as the operating license expires if they result from one or more of the following causes:

- Non-observance of the instructions for use.
- Non-intended use of the cable protection system.
- Improper assembly, installation and start-up of the cable protection system.
- Operation of the cable protection system with technical defects.
- Mechanical or electrical modifications to the cable protection system undertaken autonomously.
- Repairs carried out autonomously.
- Third party interference and Acts of God
- Deployment of non-qualified personnel.
- Opening of the cable protection system.

1.5 Organizational measures

- The instructions for use must always be kept ready-to-hand at the place of use of the cable protection system.
- In addition to the instructions for use, generally valid legal and other binding regulations on accident prevention and environmental protection must be observed and communicated.
- The respective applicable national, local and system-specific provisions and requirements must be observed and communicated.
- The operator is obliged to inform personnel on special operating features and requirements.
- Any prohibition or instruction symbols applied on the cable protection system must always be maintained in a legible state.
- Repairs may only be undertaken by the manufacturer or a center or person authorized by the manufacturer.

1.6 Copyright

NOTES!

Content information, text, drawings, graphics, and other representations are protected by copyright and are subject to commercial property rights.

It is strictly forbidden to make copies of any kind or by any means for any purpose other than in conjunction with using the cable protection system without the prior written agreement of the manufacturer. Any copyright infringements will be prosecuted.

1.7 Guarantee terms

The guarantee terms are provided in the manufacturer´s terms and conditions.

1.8 Customer service

For technical information personnel is available that can be reached per telephone, fax or email. See manufacturer´s address on page 2.

2 Basic safety instructions

DANGER!

This section provides an overview of all the important safety aspects that ensure protection of personnel, as well as safe and trouble-free cable protection system operation.

If these safety instructions are not complied with significant hazard can occur.

2.1 Responsibility of the owner

The cable protection system is used in the commercial sector. The operator of the cable protection system is therefore subject to the legal obligations for occupational safety as well as the safety, accident prevention and environmental regulations applicable to the area of application of the cable protection system.

2.2 Personnel selection and qualification; basic obligations

- Qualified personnel must only carry out all work on the cable protection system. Qualified personnel includes persons, who, through their training, experience and instruction, as well as their knowledge of the relevant standards, provisions, accident prevention regulations and operating conditions, have been authorized by the persons responsible for the system to carry out the required work and are able to recognize and avoid potential hazards. They are capable of identifying and avoiding potential hazards.
- The definition of “qualified personnel” also includes an understanding of the standards VDE 0105-100 and IEC 364 (source: e.g. Beuth Verlag GmbH, VDE-Verlag GmbH).
- The responsibility for assembly, installation, commissioning and operation must be clearly defined. The obligation exists to provide supervision for trainee personnel.

2.3 Intended use

In addition to selecting appropriately robust heavy-duty encoders, it is also necessary to protect their supply cables and signal lines against partly extreme loads.

Depending on the industry and the application these loads can include:

- The general effects of outdoor weather conditions, such as heat, cold and wetness as well as UV and ozone radiation
- Extreme temperature loads due to radiation or direct contact, licking flames, flying sparks or molten metal spatter
- Mechanical impact loads from being struck by falling parts, contact with transport vehicles or personnel as well as the effects of shock and vibration during operations
- Aggressive fluids such as acids, alkalis, cooling emulsions, oils, chemicals or salt water

Suitable cable protection systems for heavy-duty encoders need to offer more than mechanical compatibility, they must also guarantee interference-free plant operations with an integrated shielding element, cable strain relief and a suitable sealing insert.

The system manufacturer must check that the characteristics of the cable protection system satisfy his application-specific safety requirements. The responsibility or decision regarding the use of the cable protection system lies with the system manufacturer. The cable protection system is designed for unattended continuous operation.

Intended use also includes:

- observing all instructions in this instructions for use
- observing any prohibition or instruction symbols on the cable protection system
- observing the operating instructions from the machine/system manufacturer
- operating the cable protection system within the limit values specified in the technical data
- Omission of a non-intended use

2.4 Non-intended use

WARNING!

Danger of death, physical injury and damage to property in case of non-intended use of the transmission system!

The following areas of use are especially forbidden:

- in environments where there is an explosive atmosphere.
- use in environments with radioactive radiation.
- use on ships.
- for medical purposes.

2.5 Safety information

WARNING! NOTICE! NOTES!

Destruction, damage and malfunction of the cable protection system!

- Only carry out wiring work or opening and closing of electrical connections with the system de-energized.
- Potential hazards resulting from interactions with other systems and equipment which are or will be installed in the vicinity must be checked. The user is responsible for taking appropriate measures.
- Cables used must be suitable for the temperature range.
- A defective cable protection system must not be operated.
- Opening the cable protection system is forbidden.

NOTES!
Disposal

If disposal has to be undertaken after the lifespan of the cable protection system, the respective applicable country-specific regulations are to be observed.

3 Technical data

		Article	For seal insert	Kg/m
Note maximum length 30 m !!!				
Set 1 (CP-SA)		25014 25020 …..	Ø 6-13 mm Ø 8 mm + Ø 5 mm Hose SA order-related	0,45 0,45
Set 2 (CP-HT)		25015 25021 …..	Ø 6-13 mm Ø 8 mm + Ø 5 mm Hose HT order-related	0,21 0,21
Set 3 (CP-ML)		25016 25022 …..	Ø 6-13 mm Ø 8 mm + Ø 5 mm Hose ML order-related	0,34 0,34
Set 4 (CP-AF)		25017 25023 …..	Ø 6-13 mm Ø 8 mm + Ø 5 mm Hose AF order-related	0,20 0,20
Set 5 (CP-SE)		25097 25098 …..	Ø 6-13 mm Ø 8 mm + Ø 5 mm Hose SE order-related	0,40 0,40
Additional-Adapter (M25), optionally usable for Set 1-4		25018		0,026
Additional-Adapter (M25 Stainless steel), optionally usable for Set 5		25099		0,026

4 Type key

Type key cable gland	Y	M	C	P		

Cable protection system CP

Version
SA- = Standard application (e.g. outdoor installation/UL)
HT- = High temperatures (Briefly flame resistant /metal spattering)
ML- = Mechanical impact loads
AF- = Aggressive fluids
SE- = Saliferous environment
ADA = Adapter M20 to M25

Seals for cable
A = 1-Seal with 1 opening for 1x Ø 6-13 mm cable
B = 2- Seal with 2 openings for 1x Ø 8 mm and 1x Ø 5 mm cables

Type key hose	Y	H	C	P			0

Cable protection system CP

Version
SA- = Standard application (e.g. outdoor installation/UL)
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Seals for cable
A = 1-Seal with 1 opening for 1x Ø 6-13 mm cable
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Length of protection hose
0_ _ = Length in meters [m] (attention available maximum length 30 m)

5 Assembly

5.1 Safety instructions

WARNING!

- At assembly, dismantling and other work to the device the basic safety instructions to chapter 2 must be observed.
- In general, the requirements and acceptance conditions of the entire plant must be taken into account for the cultivation..

5.2 Basic rules

WARNING!

- Separate laying of power and signal cables.
- Observe the manufacturer's instructions when installing inverters, shield the power cables between the frequency inverter and the motor.
- Sufficient dimensioning of the power supply.

5.3 Replacing the cable protection system

The following points must be noted when replacing the cable protection system:

- The new cable protection system must have the same order number as the cable protection system being replaced.
- When recommissioning the replaced cable protection system, correct functioning must be ensured first of all by means of a protected test run.

5.4 Assembly and handling

- Thread the cable using the threading system, see the example in Figure 1 for 2 individual cables, or the further information for the threading system online, e.g. https://produkte.katimex.com//einziehsysteme/
- The user can add a slit to the sealing insert, for instance when installing fiber optic cables with ST plugs, or if the cable does not fit through.
- Avoid standing liquids from the hose side on the encoder connection: there is a danger that water can enter the rotary encoder, or that the hose can freeze in low temperatures. The following measures are required:
  - Damage on the hose line may make it easier for liquid to enter the area.
  - Replace the hose or have it repaired professionally/sealed against liquid.
  - The second end of the hose facing the switch cabinet is open and must be sealed (user must provide seal).
  - The hose may not come from directly above. Connect the hose to the rotary encoder coming from below.

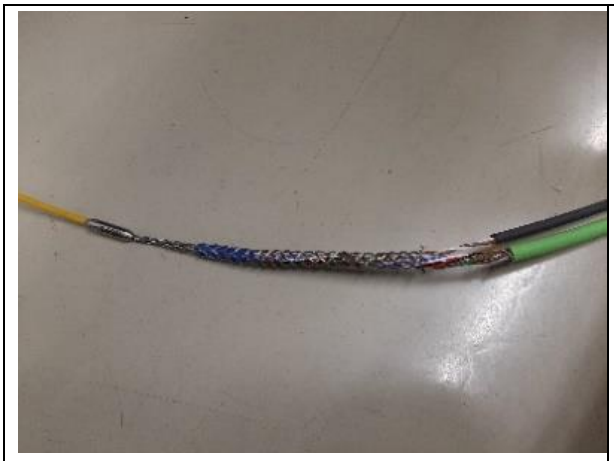
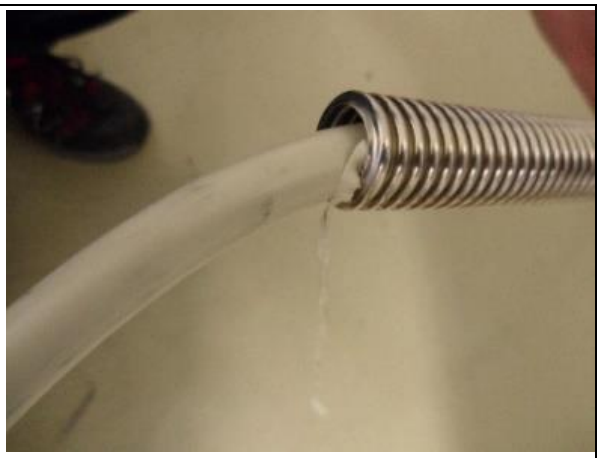
	

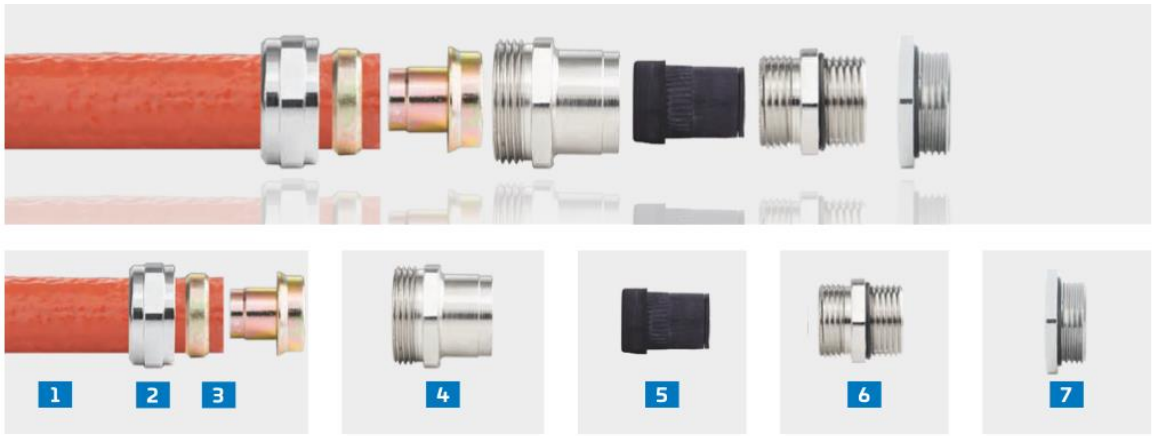
Figure 1 Pull in system for 2 cables	**Figure 2** Remove burr

- Tailor-made sealing inserts for sealing, cable strain relief and different cable combinations (see **Figure 3**).

	
Seal with 1 opening and internal insert for cable Ø 6 – 13 mm; suitable for installing a single cable, e.g., copper or fiber optic cable.	Seal with 2 openings for Ø 8 mm and Ø 5 mm cables; suitable for installing two cables through a cable gland • e.g., fiber optic cable up to Ø 8 mm (signal line) • e.g., copper cable up to Ø 5 mm (supply voltage)

Figure 3

6 Mounting example type HT with ALS 40

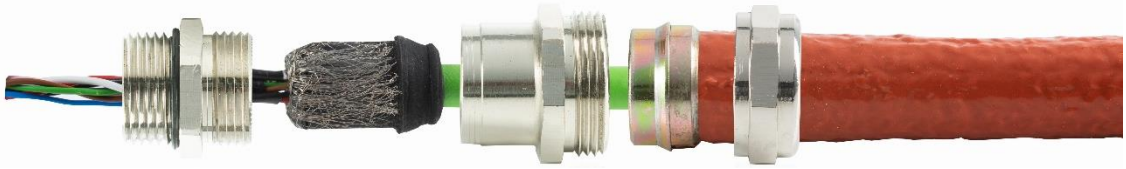


1 Schutzschlauch / Protection hose
2 Überwurfmutter / Union nut
3 Klemmring + Einschraubhülse / Clamp ring + screw-in sleeve
4 Verschraubungs-Einsatz / Cable gland insert
5 Dichteinsatz / Seal insert
6 Vorsatz mit Gewinde M20 / Adapter with thread M20
7 Optionaler Adapter M20x1,5 zu M25x1,5
Optional adapter M20x1.5 to M25x1.5

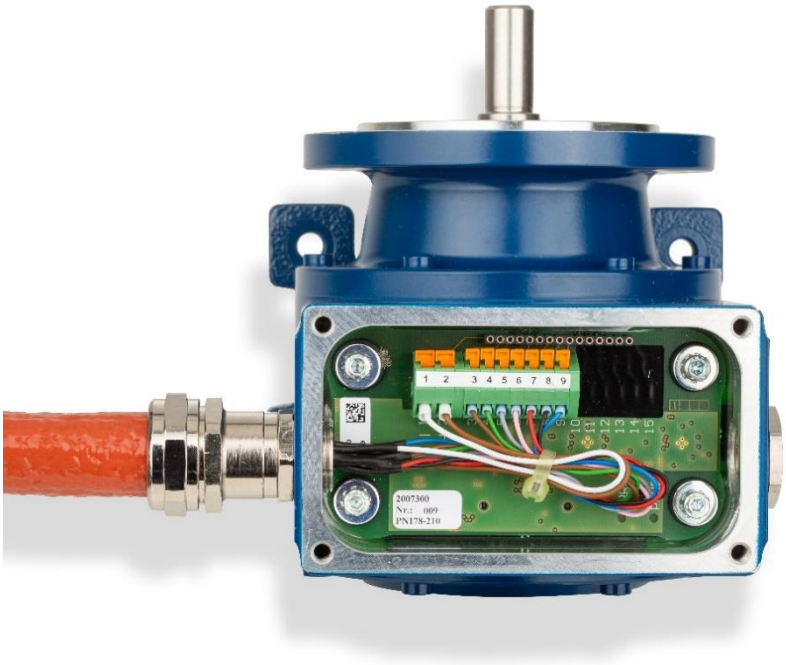
Tightening torques		**NOTES**
Union nut [2]	> 34 Nm	Attention: Second hose end open (user-side connection)
Cable gland insert [4]	> 23 Nm	
Adapter with thread [6]	> 6 Nm	
Adapter [7]	> 8 Nm	

- The information applies to the minimum torque. A higher torque should be used if required due to the tolerances (hose + cable gland).
- The cable gland is installed first by manually tightening it. Then use an appropriate tool to turn the union nut with the fixed screw housing 1 to 2 times, so as to achieve a sealed installation (in accordance with the protection class).

- The system is pre-assembled and hand-tightened (condition on delivery, from package).
- Disassembly. Disassemble into individual parts as shown.
- Thread the cable through the protection hose (1).
- Remove the existing cable gland on the rotary encoder.
- Attach the fixture with M20 thread (6) (or fixture with M25 adapter for M25 system)
- (6+7) to the rotary encoder.
- Push the union nut (2) over the hose.
- Then attach the clamp ring + screw-in sleeve (3) to the hose.
- Cut the connection cable to the appropriate length (for a correct connection inside the junction box) and pull back the shielding on Cu cables.
- Push the connection cable in the hose through the cable gland insert (4) and seal insert (5) into the rotary encoder, so that it can be connected inside the junction box.
- Place the shielding (if available) over the seal insert (5), cut the shield wires to length (see image) and insert the sealing insert with cable into the adapter (6).



- Turn the cable gland insert (4) onto the adapter (6) so that the seal insert (5) is crimped.
- Fasten the union nut (2) onto the cable gland insert (4). If necessary, carefully pull the connection cable back slightly (as needed) over the second side of the protective hose.
- Connect the cable inside the junction box according to the wiring diagram.



1) **Usage location / Marginal conditions**
   - Thermal characteristics: All information on temperature ranges applies to the cable protection system. The cable installed inside must be selected as appropriate for the applicable temperatures present on site (this is the user's responsibility).
   - All marginal conditions (temperature range, protection class, permitted bending radii, max. Structural strength) according to pages 6+7 of the catalog must be complied with at the usage location.
   - Environmental influence (aggressive liquids, UV, ozone, weather, etc...) can only be evaluated by the user. The supplier can only provide a recommendation. The user is responsible for evaluating such risks and for using the equipment at the usage location / for choosing the cable protection system.
2) **Grounding/EMC**
   - Regulations for connecting the shielding in consideration of the application circumstances (any deviating potentials, leakage current, short circuit, etc...) All supply voltage lines and Cu lines for signals require shielding on both sides.
   - If grounding is provided via the hose (instead of via cable shielding), the open end of the hose must be grounded on the other side. For non-metallic hoses (such as type CP-HT), grounding must be implemented using the cable (shielding).
   - Note on lightning protection: All required measures must be taken by the user in accordance with local regulations and standards.
3) **Certifications**
   - Note: If the cable gland is removed from the rotary encoder/device, the device-specific certification will be null and void.
   - UL/CSA: CP-SA with seal insert for 6-13 mm diameter, otherwise no UL certification.
   - Further certifications (such as SIL, Ex are not available for the cable protection system. Use with a certified rotary encoder must be considered and clarified in each individual case with the supplier.
   - Use in special hazardous areas (such as explosive areas) is prohibited.
4) **Compatibility**
   - Note: The cable protection systems have been adapted only to rotary encoder systems made by Johannes Hübner Giessen. They may, in principle, be used with other devices, however, such use has not been tested and no guarantee can be provided.
   - Maximum length: 30 m. Longer lengths may be achieved via user-supplied connection elements, or please clarify options in each individual case.
5) **Additional installation information**
   In order to avoid destruction, damage or restriction in the use of the cable, any burrs produced when cutting through the cable protection system must be removed using a suitable tool. See Figure 2 on page 11.

7 Transport, packaging and storage

7.1 Safety information concerning transport

!	**CAUTION!** **Material damage caused by improper transport!** Observe the symbols and information on the packaging: Do not throw - risk of breakage. Keep dry

7.2 Goods inward inspection

Check the delivery immediately upon receipt for transit damage or short delivery.
Inform the carrier immediately on receipt if you determine that damage has occurred during transit (take photos as proof).

7.3 Packaging (disposal)

The packaging is not taken back; dispose of according to the respective valid statutory provisions and local regulations.

7.4 Storing packages (cable protection systems)

	**Keep dry!** Keep packages dry and free from dust; protect from moisture.

If you intend to store the cable protection systems for a longer period of time (> 6 months) we recommend you use protective packaging (with desiccant).

7.5 Returning cable protection systems (repairs/goodwill/warranty)

The cable protection systems which have got into contact with radioactive radiation or radioactive materials will not be taken back.
The cable protection systems which have got into contact with possibly noxious chemical or biological substances must be decontaminated before the return.
They must also be accompanied by a safety clearance certificate.

7.6 Disposal

The manufacturer is not obliged to take back the goods.
The cable protection system must be disposed of in accordance with the country-specific laws. The local authorities or special waste management companies will provide information on environmentally friendly disposal.